LOUISIANA Conservationist

LOUISIANA WILD LIFE AND FISHERIES COMMISSION

JULY
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Conservation Pledge

I give my pledge as an American to save and faithfully to defend from waste the natural resources of my country—its soil and minerals, its forests, waters and wildlife

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Bass get big in Louisiana and when a little girl holds up a big one, it is a big occasion for her. The expression on her face clearly indicates that. Trophy bass such as this one caught in northeast Louisiana are highly prized. Most anglers fortunate enough to catch one this size will have it mounted for display. They do not always come this big, but there are enough of them around to keep bass fishermen trying for the "big one." (Photo by John Blanchard)

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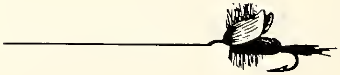

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EDITORIAL

JULY, AUGUST AND September are what might be called the fishing rodeo months. They are also the months for big game fishing out of South Pass. The New Orleans Big Game Fishing Club, organized about five years ago, has spearheaded this type of fishing and their first tournament of this year was highly successful, with more blue marlin being landed in a single day than in any previous tournament.

During the Memorial Day week end, Guy Billups broke the standing State record for catching the largest yellowfin tuna ever recorded in Louisiana waters. It tipped the scales at 196½ pounds, shattering the 174-pound mark, established in 1964 by Homer John Moore, III.

Big game fishing has put Louisiana on the world map of places where big game fishermen go for sport. So much so that just recently another big game fishing club was formed. I refer to the Golden Meadow Big Game Fishing Club, with 30 charter members and room for more.

The point I am making is that these big game fishing tournaments, along with the coastal saltwater fishing rodeos and freshwater fishing contests, both large and small, are not simply recreational outlets during the summer months.

On the contrary, when lumped together, these fishing contests are of great economic importance to the State of Louisiana and serve to publicize the unexcelled fishing which Louisiana offers. In dealing with the economic importance of the summer fishing rodeos, we should not fail to call attention to bountiful fall, winter and spring coastal fishing, as well as year around freshwater fishing.

Aside from outdoor recreation for the people of Louisiana, this sort of fishing, highlighted by the rodeos and regional contests, is a drawing card for vacationing families and general tourists. It would be impossible to estimate the amount of tourist dollars that are spent in Louisiana because of the State's bountiful fishing. One would have to take into consideration sales and services such as gasoline, lodging, meals, shopping, rental of boats and motors, and many other items either purchased or rented.

At a State level, it is also impossible to compute the collective costs of fishing trips. Here, again, gasoline, lodging, meals, boat and motor rentals, tackle sales, ice, launching fees at private launching sites, and numerous other expenditures figure in the total amount of money spent on fishing.

J. D. HAIR, JR.
Director

To cite another example of the economic value of tourist-fishermen, I would like to call attention to the growing number of anglers who fly to Louisiana to fish, and in a growing number of cases bring their deep sea fishing boats from states such as Texas, Mississippi and Alabama. Once they are here, fresh money goes into circulation at all levels.

We know that in 1964-65, a total of $233,628.06 was derived from the sale of fishing licenses. Of the 196,138 fishing licenses sold, there was a total of 21,054 non-resident licenses issued. A breakdown of that last figure showed 8,779 non-resident season licenses and 12,275 two-day non-resident licenses sold. It is certain that those 21,054 persons who were non-resident anglers spent hundreds of thousands of dollars in Louisiana.

Multiply that estimate by the number of licensed resident anglers and the total figure looms astonishingly high. All of this money spent finds its way into many sources of sales and services.

It seems appropriate for me to mention that these figures do not cover a universal fishing license year. It is estimated that at least an additional 200,000 persons fished throughout the state without licenses because none are required of persons using cane poles. And the collective estimate does not include persons under 16 years of age who are not required to have fishing licenses, nor persons over 60 years of age who receive free permits to fish for the remainder of their lives.

It can be seen clearly that Louisiana is one of the most important states for fishing in the United States as far as sportsmen are concerned. The fishing is good and the Louisiana Wild Life and Fisheries Commission is engaged in programs to make it even better.

There's unlimited fishing for the citizens of Louisiana and this bountiful fisheries is also an unlimited attraction for tourists. We've got it good and everyone should realize what a great resource exists in the Pelican State. *

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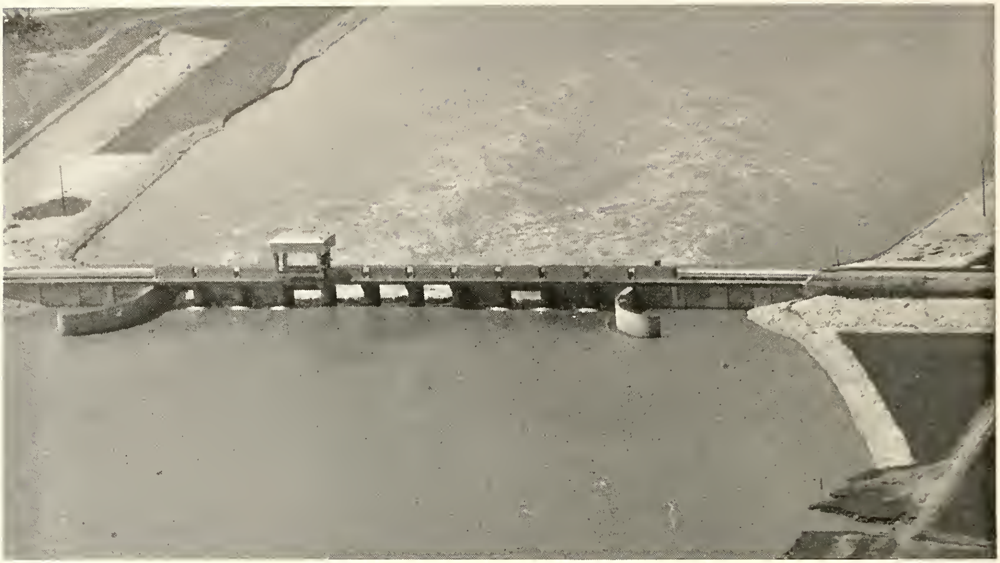


Photo by Bob Dennie

The low-sill structure pictured above is a central feature of the Old River Control complex. This structure is designed to discharge continuous quantities of Mississippi River water into the Atchafalaya River system. Unfortunate accidents in which runaway barges entered the structure and sank or caused structural damage made it necessary to close this facility for repairs. This resulted in drastically reduced water stages in the lower Red River and in the Atchafalaya River as well.

OLD RIVER AND THE ATCHAFALAYA

Max W. Summers

UNFORTUNATE ACCIDENTS from the standpoint of fish and wildlife, have plagued the Mississippi—Atchafalaya River water control system and from time to time imposed reduced water stages in the lower Atchafalaya River. In 1964, on the night of April 30, several barges entered the forebay of the Old River low-sill structure and caused extensive damage. As a result, the low-sill structure was closed for repairs. This closure greatly reduced the normal flow of the Atchafalaya River. During the period May 1, 1964, through August 10, 1964, 23,660,000 acre-feet of water which normally entered the Atchafalaya System were routed down the Mississippi River.

This resulted in drastically altered water levels throughout the entire Atchafalaya River System. This general dewatering of the lower Atchafalaya Floodway immediately eliminated all crawfishing operations. The crawfish season was actually shortened two months by the rapid loss of water.

All fisheries resources were adversely affected by the widespread loss of water. Many thousands of fish were trapped in isolated water bodies too shallow to sustain them during this period of low water. Both sport and commerical fishing activities were all but suspended and the local economy was seriously affected. Because the Atchafalaya Basin is so important to fish and wildlife, an economic evaluation of the loss to these resources was undertaken.

Since sport crawfishing in the Atchafalaya Basin reaches tremendous proportions during May and June, it was deemed necessary to determine the economic importance of the recreational aspect of this resource.

The total population of the six parishes within and adjacent to the basin is approximately 300,000. It is estimated that about two out of ten of these people go crawfishing and that they make at least two trips during May and June. Thus, over 60,000 man days of crawfishing could be attributed to the area during this important period. Based on an ultra-conservative figure of $1.50 per man day of crawfishing, it is calculated a loss of $90,000.00 could be assigned to sport crawfishing. This does not take into consideration the thousands of additional people visiting the area from cities and parishes over 50 miles distant from the basin.

The average yearly catch of commercial fish and crawfish within the six parishes that comprise the lower Atchafalaya Basin is around 8,500,000 pounds. This produce has an annual value of approximately $1,500,000. By surveying a number of commercial fish dealers, it has been determined the 1965 commercial fish catch was reduced to a small percentage of the normal harvest due to the lowering of water levels in 1964. Some dealers reported business off as much as 85 percent. Others indicated a 50 percent reduction. Most commercial fishermen suspended operations completely because of reduced water levels. By conservative estimates, it was determined the commercial fisheries industry within this six parish area sustained a net loss of approximately $500,000 or one third its normal average value.

Sport fishing during this low water period was also greatly restricted and the local economy was adversely affected. Individual bait dealers, boat liveries and fishing camp operators reported business was practically nonexistent after the gates on Old River Control Structure were closed. Some individuals had to seek jobs elsewhere to make a living. Other individual operators even sold their businesses and moved away.

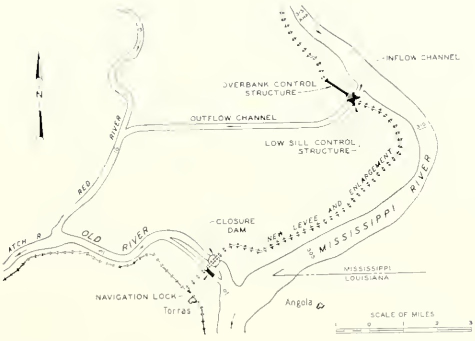
Based on a survey conducted by our fisheries section in May of 1963, it was determined that approximately 18,000 sport fishermen entered the Atchafalaya Basin over a nine day period. This would indicate some 2,000 fishermen per day were recorded at 18 checking locations throughout the lower basin area.

Figuring a loss of 50 percent in sport fishing during the 100 day closure period, it is calculated a loss of 100,000 man days of fishing was experienced. Based on a value of $2.00 per man day of fishing, a loss of $200,000 for this 100 day period was calculated.

The above losses are ultra-conservative according to all information obtained from local residents and businessmen associated with sport and commercial fishing in the basin. These losses were immediate and reflect direct effects on fish and wildlife resources.

Indirect losses will not begin to appear for sometime. Fisheries resources are believed to have been severely damaged by the rapid and widespread dewatering of the basin during the critical spawning period. Both sport and commercial fish were trapped in isolated ponds, sloughs, and pot holes and eventually died when these areas dried up during the months of June, July and August. The major portion of this area was eliminated as a hatchery and nursery ground. It is believed there was at least a 50 percent reduction in both sport and commercial fish reproduction for the 1964 season. According to many reports sport fishing was very poor during 1965. Similar reports indicate the commercial fish harvest was down markedly. The exact figure on commercial production in 1965 will not be available for sometime. A survey is now underway to determine the annual production of commercial fisheries products.

The loss of annual reproduction in both sport and commercial fish will be felt for many years. These fishery resources will recover provided the loss of water and spawning habitat during the following spring and early summer period is not soon repeated. However, it will take from two to four years to bring brood stocks up to existing populations prior to this extensive water shortage.



OLD RIVER CONTROL

The above diagram illustrates all features of the Old River Control facility. The construction of this project was necessary in order to prevent the Atchafalya River from capturing the flow of the Mississippi River.

The total over all loss to fisheries resources cannot be accurately appraised at this date. It would be staggering when considering the time it will take to restore normal fish populations.

The Saline Bayou, Larto Lake and Red River Backwater system were similarly affected by lowered water stages in the Atchafalaya River. All of these areas are influenced by stages on the Red River. Correspondingly the Atchafalaya River stage determines the Red River discharge since this river is no longer a distributary of the Mississippi.

These spawning grounds were also extensively dewatered and both sport and commercial fisheries reproduction were eliminated or greatly restricted. Reports from camp owners, boat docks operators and area fishermen indicate fishing success was drastically reduced during this period. Similarly, fishing success in 1965 was down in comparison to years prior to the 1964 loss of water.

Native game animals did not receive any lasting harmful effects from the widespread draining of the swamplands. These species are restricted to the more or less permanent land areas and use the dewatered area on a temporary basis only.

Food supplies of fur-bearers such as raccoon, mink and otter were reduced. However, the total effect of reduced water levels on these animals has not been evaluated.

If it were possible to make an extremely accurate appraisal of the total loss of fisheries and aquatic resources as a result of the rapid and extensive drainage of thousands of acres of productive habitat, it is believed it would be well over $1,000,000. This represents a large portion of the economy of the parishes which make up the lower Atchafalaya Floodway and for the entire state as well.

Prior to 1959, the Atchafalaya River system was receiving ever increasing amounts of Mississippi River water through the channel known as Old River. Studies by the U. S. Army Corps of

Engineers indicated that if steps were not taken to prevent this situation from continuing, the Mississippi River would change its course to that of the Atchafalaya River. It was further determined this change would take place sometime between 1965 and 1975.

Should this channel relocation occur, the cities of Baton Rouge and New Orleans and all communities along the Lower Mississippi River would be deprived of necessary quantities of fresh water, especially during low-water periods. Industries now located along this 250 mile stretch would be without sufficient fresh water. Saltwater intrusion would extend upstream as far as Baton Rouge and the entire lower Mississippi River Valley would be adversely affected.

With this set of conditions in mind the control of Mississippi River discharges at the latitude of Old River was deemed manditory. Subsequently, a system of control devices was planned. This program went forward under authorization provided by Public Law 780, 83 Congress, approved September 3, 1954. This was a modification of the Flood Control Act of May 15, 1928. By definition this new legislation provided for the control of flows from the Mississippi River into the Atchafalaya River and basin by mechanically operated control structures located on the west bank of the Mississippi River. Operation and maintenance of these facilities would remain the responsibility of the U. S. Army Corps of Engineers.

This project was constructed in segments and its principal features are:

(1) A Low-Sill Control structure consisting of 11 gate bays, each having a 44-foot width between piers, except the three center gates which have a wier crest 5.0 feet below mean sea level for passing low flows, and a wier crest of 10.0 feet above mean sea level to pass additional flows. Its total length is 566 feet. The vertical-lift steel gates are mechanically operated.

(2) An Inflow Channel completed in 1960 is one-half mile long and has a bottom width of 1,000 feet. It is 5.0 feet below mean sea level. The outflow channel also finished in 1960 has a bottom width of 900 feet and is 9.0 feet below mean sea level and connects to the Red and Atchafalaya River Complex.

(3) An Overbank Control structure is a concrete facility consisting of 73 gate bays, each are 44 feet wide. Wier crest is 52.0 feet above mean sea level. This structure is 3,356 feet in length. Flow is controlled by hinged timber panels operated by traveling gantry cranes.

(4) The Old River Navigation Locks will allow continued navigation between the Atchafalaya, Ouachita—Black and Red Rivers, and the Mississippi River through Old River. The lock is 75 feet in width and is 1,200 feet long. The facility was completed and placed in operation in 1963.

All segments of this project are operational and are accomplishing the intended results. However, there have been some unforeseen accidents and damages to the low-sill structure which continually discharges large quantities of water into the Atchafalaya River and basin. The quantity of water discharged is determined by the stage of the Mississippi. Present discharges are programed to be similar to the flows associated with the existing water patterns prior to the construction of the Old River Control project.

Currently steps are being taken to eliminate the reoccurrence of this devastating loss of water in the Atchafalaya Basin. The U. S. Army Corps of Engineers is preparing a general design memorandum plan to prevent damage of this nature from ever happening again. This is very necessary and immediate action must be taken to remedy this problem. At this very writing additional damage to the low-sill structure caused by runaway barges has caused it to be closed for repairs. If this happens again in successive years or during the critical spawning season of our game and commercial fish species, unmeasurable damage could virtually eliminate fisheries resources, as we now know them, in the river system controlled by the Old River facility.

All of us interested in the conservation of our fisheries resources should get behind this project in an all out effort to urge the U. S. Army Corps of Engineers to construct the necessary facilities to protect the low-sill structure so the present integrity of the Atchafalaya River System can be maintained. ✠

Management Areas Add 16,000 Acres

The Louisiana Wild Life and Fisheries Commission has announced that the commission had agreed to lease without cost between 16,000 and 18,000 acres in Ouachita Parish for the establishment of a wildlife management area.

Bulk of the acreage, 13,200 acres, is owned by Cities Service, Columbian Fuel Corporation; other companies and individuals own the balance of the land.

Following a report from Joe L. Herring, chief of the Fish and Game Division of the commission, that the area was ideally suited for a wildlife management area, the commission voted to accept the offer and start immediate steps toward turning the combined tracts into a wildlife management area.

The new area will provide excellent deer, squirrel and rabbit hunting and provide areas for other forms of outdoor recreation. ✠

Louisiana has been confronted for a great number of years with the problem of stream pollution. For that reason the Legislature has from time to time passed acts which have provided sufficient means to prevent pollution in waters lying within the boundaries of the state.

In considering the general biology of squirrels in Louisiana, it is only necessary to divide them into the fox and gray types.

BROWN SHRIMP OUTLOOK FOR 1966

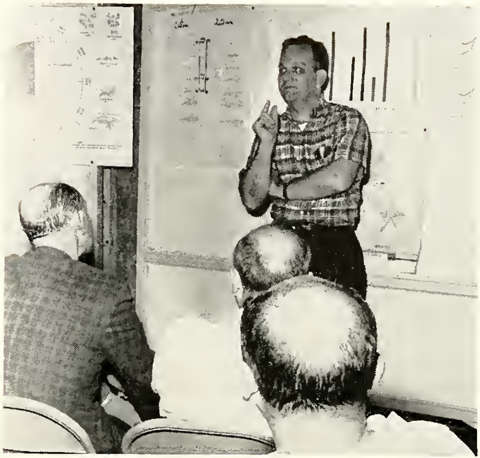
REPRESENTATIVES of the Louisiana shrimp industry journeyed to the Marine Laboratory on Grand Terre Island for the fourth straight year on April 20th to learn about this year's shrimp research in the Greater Barataria Bay and Sister Lake areas. The group included a good cross-section of the industry from the fishermen to the brokers—all those who help put Louisiana shrimp on tables country wide.

It must be realized that shrimp are an annual crop and we must study them while they are available on the nursery grounds in "inside waters." This means that our laboratory personnel must conduct a well planned sampling program from mid-winter when the postlarval (or baby) shrimp move into the bays from offshore Gulf waters until the season opens. Since similar data on shrimp recruitment, density, growth, temperatures, salinities, etc., were collected and studied for the past several years, we now have a reasonably good basis for comparison in trying to predict whether this year's crop will be as good, or better, or less than one of these previous years.

We thought that four years of shrimp data reinforced by even more years of hydrographic data would constitute good parameters for these comparisons. However, this spring appears to be one of the colder ones in recent years, so now we have still another set of conditions to consider. Seemingly, these lower accumulative water temperatures have contributed to slower growth rates. Salinity conditions in general appeared to be about average as we presently understand this mechanism.

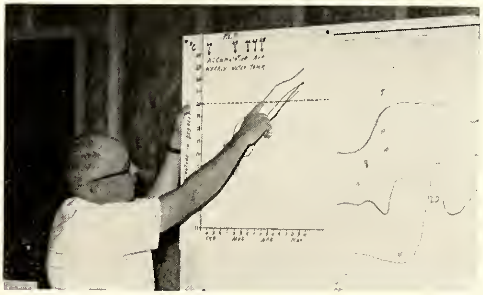
The postlarval shrimp density (or recruitment) in the Passes for 1966 was better than the previous four years and, fortunately, it also peaked later in the winter or early spring. Even though our sampling efficiency may have improved, we believe that this year's samples were much better and the difference was real. Juvenile shrimp samples indicated that there was good survival of the shrimp although growth was slow. These shrimp densities were good, but were not equal to the best in prior years. After these scientific data were discussed with the group by Dr. St. Amant, it was generally agreed that the best recommendation for the opening day of the season was the latest possible—May 15th. Statutory law provides that the Commission shall fix the opening date of the sixty day season between May 1 and 15. This year it appears that another ten days delay would have permitted more growth and possibly a larger shrimp for the harvest. Nevertheless, we must remember that this spring season applies to brown shrimp, and the white shrimp season is fixed by law to open the third Monday in August. The laws were planned to have a "closed" period in inside waters so that trawling would not interfere with the new crop of white shrimp.

Reports of catches received during the first two weeks of the brown season appear to confirm this year's outlook. Typical comments are as follows: "The shrimp are running small and late this year;" or "Little and late—cold weather held them back." We hope that the harvest will be bountiful and the market continues to improve. ✠



Dr. Ted B. Ford, Chief, Oyster Waterbottoms and Seafood Division, gives serious thought that although the shrimp are small at this time the projected outlook points to a profitable season ahead.

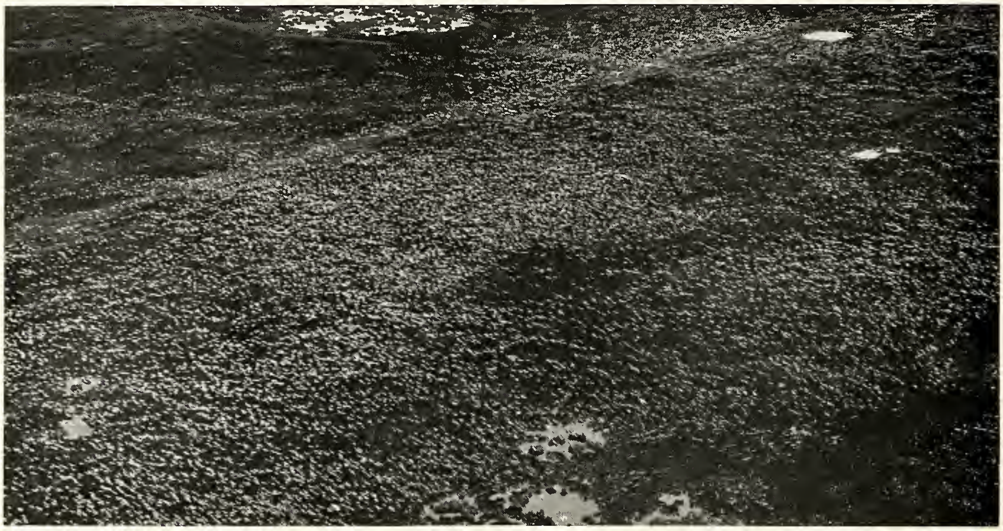
'rofound interest is displayed by shrimp association epresentatives at a recent meeting held at the Marine laboratory, Grand Terre.



Dr. Lyle S. St. Amant explains to representatives of the shrimp industry the effects water temperature has on postlarval and juvenile shrimp.

HISTORY OF WATERFOWL MANAGEMENT

McFadden Duffy and Clark Hoffpaeur



The importance of Louisiana as a winter ground for approximately 25 per cent of the continental waterfowl population is certain evident in this photograph which shows a tremendous number of waterfowl. While there have been conflicting theories about the importance of wintering areas as compared to nesting areas, there is little doubt that both are vital to perpetuation of ducks, geese and coots. If winter marshes are lost as a result of other land uses, the continental supply of migratory birds would dwindle no matter how good the nesting areas. This photograph was made in Louisiana by Bob Dennie in 1965.

WATERFOWL MANAGEMENT, which attracts more interest today than possibly any other general branch of wildlife management, is still in its infancy. It is safe to say that the bulk of information upon which waterfowl hunting seasons today are based has been collected in slightly over a decade. Certainly not more than 15 years when intensified research activities were instituted at both federal and State levels.

Market hunting of waterfowl ended in what oldtimers call the "Dirty 30's" which was a period when a noticeable decline in waterfowl over a period of a few years clearly pointed that if continued killing of waterfowl for sale was allowed, populations would soon become decimated.

The numbers of waterfowl varies from year to year and from decade to decade. This is dependent upon natural conditions. Increases and decreases are certain to occur. There are no researchers today who can say for sure how the highs of a generation ago compare to the highs of present years. There are many persons who believe that the peak populations of waterfowl are generally downward.

Through the years, obviously more hunters and "fewer birds" have brought about a reduction in the length of the hunting season and the number of ducks in the daily bag.

The first Federal regulations for migratory waterfowl came in 1918. These provided for a season of 100 days and 25 ducks. Those regulations indicated no fixed shooting hours, no possession limits or prohibitions on methods of hunting. The daily bag during that period on geese was eight daily.

This initial limitation of hunting of waterfowl, even though it contained loose curtailment and few important enforcement checks, was the direct result of a step toward waterfowl conservation brought about by the signing of a treaty between the United States and Canada in 1916. The treaty was aimed at the protection of waterfowl moving seasonally between the United States and Canada. It drew attention to the international and legal status of many groups of migratory birds and established a basis for protecting them.

This treaty which is still the foundation for managing migratory birds in North America was implemented by the negotiation in 1936 of a comparable treaty with Mexico. Those two treaties today link Canada, the United States and Mexico in efforts to preserve a common resource. It was a migratory resource that was there for the three countries to share but for none to monopolize.

It would appear that the two treaties and the limitation of duck hunting to 100 days and 25 ducks and eight geese had possibly solved the concern over migratory waterfowl and the future of waterfowling. Boiled down, it amounted to management by legislation. But, shortly, the escapable fact became obvious. Wildlife resources cannot be managed by legislation.

Another element entered into the overall picture. There was a severe drought in the 1930's which demonstrated that laws alone, treaties and regulations, however well conceived, cannot control the production of waterfowl.

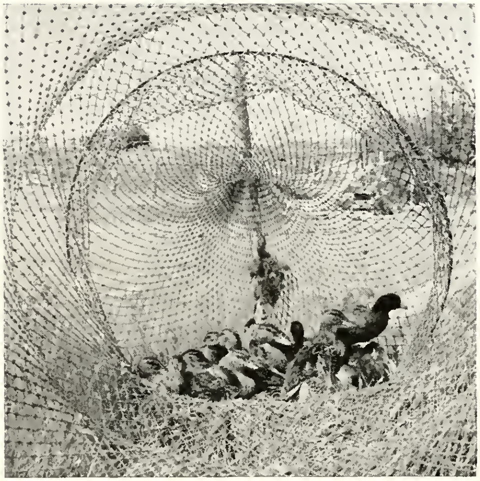
Everything suffered from the parched earth. This includes people, livestock, crops, the soil and waterfowl. These were what waterfowlers and others call the "Dirty Thirties." The prairies of central Canada and the United States became the greatest dust bowl in history.

It is said in official circles that the number of waterfowl dwindled to the lowest level in history. But since waterfowl management as we know it today did not exist at that time, that low level and the peak before it are merely a matter of speculation. Efforts began at that time to acquire lands to help safeguard both production and winter survival of waterfowl. This was the first step along that line in the history of initial waterfowl management.

Before the big drought, the Federal government had managed to acquire 744,000 acres of land for the conservation of all forms of wildlife. It took until 1942, nearly a decade later, that at a Federal level there were nearly 3,000,000 acres set aside for the perpetuation of waterfowl alone. And it is significant to note that much of this acreage was acquired with money received from the sale of dollar duck stamps, which the hunters of waterfowl bought under the Migratory Bird Hunting Stamp Act, passed by Congress in 1934.

By 1956, records for the Mississippi Flyway show that winter populations in the flyway of which Louisiana is one of 14 states was extremely high, with increases recorded for all species.

Holding pens are utilized in the aging, sexing and banding of ducks. This information built up through the years by research and analysis of data from bands that are returned will provide the answers to many questions about the habits of waterfowl. Hunters should make every effort to return any band taken from a bagged bird.



This photograph shows live-trapped ducks ready to be banded. Banding of waterfowl and the recovery of bands provides vital information about migratory patterns, life spans, estimated past reproduction and nesting as well as wintering areas used by migratory birds.

Then came the bumper year of 1957 when it was estimated that there were approximately 30,000,000 ducks making up the continental populations, as revealed by the mid-winter inventory.

It is significant at this point to offer some facts and figures about how hunting opportunity was effected during this period from the 1930's to the present.

In 1944, the daily bag limit was cut to 14 ducks. In 1945, it was cut to 10 ducks. In 1946, it was cut to 6 ducks. In 1947, it was cut to four ducks daily and continued to remain at four until 1961 when the daily bag was cut to three ducks. The year 1962 saw the most drastic cut of all when the daily bag was cut to two ducks. It was raised to four in 1963 and has remained at four since except that drastic daily limitations have been imposed upon certain highly prized species such as mallards and pintails.

The same fluctuation of shooting days allowed took place. Back in 1944, the season was 80 days. The same number of days were granted in 1945. In 1946, the number of shooting days was sliced in half—down to 40 days. In 1947, it was cut further, to 30 days. It remained at 30 days in 1948 and was returned to 40 days in 1949. In 1950, it was cut again to 35 days. By 1951, the number of days was again at 40. In 1952, it climbed to 50, remaining at 50 days in 1953 and 1954. In 1955, 1956, 1957 and 1958, it was upped to 70 days. In 1959 and 1960, the number of shooting days was decreased to 40. In 1961, it was sliced to 19½ days and in 1962 it was raised to 24½ days. In 1963, it was placed at 35 days. In 1964, it was raised to 40 days. In 1965, it was set at 40 days.

Charts would show more quickly that there is a vast difference in the number of shooting days

Flights of migratory waterfowl such as this are a common sight throughout the continent. Proper management of this traditional resource is necessary in order to assure that this type of scene will never vanish but will remain for future generations.

when compared to a consistent bag limit of four or less and compared with the midwinter inventory for the Mississippi Flyway.

It was during the period that is referred to in the figures for shooting days and bag limits that the relatively new scientific process of waterfowl management was struggling to rise from infancy to maturity. That struggle is still going on. To cite but one example, when the 1962 number of shooting days was raised from 19½ days to 24½ days, the bag limit was reduced to two ducks daily. At the same time the post season midwinter inventory of 1962 showed that the number of ducks present in the flyway was on a par with 1958, 1959, 1960 and slightly below 1961 which was equal to 1956 and 1957 when 70 days of shooting with a bag limit of four was allowed. This gave positive indications that something was not consistent with Federal waterfowl management theories and further proof that waterfowl management, itself, was growing up the hard way.

This illogical fluctuation was reflected in the sales of duck stamps which had increased from one dollar to two dollars and finally three dollars. The general trend in recent years has been a considerable decline in duck stamp sales, brought about by the cuts that have been made in bag limits and season lengths, the only true indice to hunting pressure in the state and flyway.

From a peak of about one million duck stamps sold in the Mississippi Flyway in the years 1956, 57 and 58, the sale declined to less than 400,000 in 1962. This definitely indicated a loss of hunter interest due to inconsistencies in the fixing of seasons and bag limits.

Loss of hunter interest is the prelude to loss of wintering habitat and indifference to wetlands acquisition programs. The job of waterfowl preservation and management cannot be left to government alone.

This is easily seen in the Federal government's crash program to acquire needed wetlands nesting habitat. History repeated itself in the late 1950's when it became obvious that the water cycle in the prairies was heading downward. Potholes and marshes were drying up. The total number of ducks began to decrease. Waterfowl had recovered from the previous drought, but the overall situation was not the same. Drainage projects were destroying more habitat than could be obtained.

The upshot was much discussion and many recommendations. Some of these were put into action. Hunting seasons were curtailed in some areas and certain species were taken off the list of huntable waterfowl and protected in efforts to protect brood stock and restore populations of those declining species. Efforts were also made to offset, compensate for, or prevent unnecessary drainage and to reserve more wetlands for waterfowl.

Immediate action was needed to obtain more wetlands. Toward that end, Congress responded in 1961 by authorizing under Public Law 87-383 a loan fund of 105 million dollars repayable from the sale of migratory waterfowl hunting stamps.

Interest in waterfowl management will certainly dwindle if hunter opportunity is allowed to wane due to over-restrictive regulations. Waterfowl are a renewable resource by interest on the part of the hunting public is necessary to foster habitat improvement programs.

The program launched in 1962 was expected to reach its goal in 1968. It is doubtful that it will because increasing costs of land and growing difficulty in acquiring the needed land are major obstacles that see the program far behind in its schedule.

One of America's foremost conservationists, the late Aldo Leopold, in 1931 foresaw this need. He wrote: "The only fundamental remedy (to shrinking acres of breeding grounds) is to recognize the fact that undrained private marshland performs a public service in producing migratory birds, and to give the owner an incentive for keeping, continuing or restoring that service by according them a preferential tax status, such as is now afforded in some states to private forests on the same principal of public service. The public agencies can never acquire enough of the small marshes to offset the ones that are being taxed out of existence, nor can science show how to grow ducklings in a cornfield. The steamroller of economic self-interest must somehow be steered so that it will work with, not against, the feeble spiritual calamity—a duckless America."

This statement, made more than three decades ago, foretold the difficulties that are being encountered now in the acquisition of wetlands at a Federal level.

There is another factor equally as important as acquisition of wetlands for nesting purposes. That is retention of marshes and improvement of wintering habitat at private and state levels. When hunting regulations are illogical and overly restrictive, hunter interest declines. This was evidenced in the figures cited for the decline in the sale of migratory waterfowl stamps. With that decline in interest, there is certain to come marshland depreciation in the wintering grounds and, in slowly but increasingly important cases, conversion of wintering lands to other land uses. The present trend in Federal waterfowl management could trigger wholesale drainage and conversion of wintering grounds at a greatly accelerated rate. This would defeat to a great extent, efforts to obtain additional wetlands for producing more waterfowl.

If the late Aldo Leopold was alive today, he might add that "science cannot show how millions of waterfowl can winter in pastures, on acres of concrete laid by industry, or in newly-developed housing projects and widely-expanding communities."

In support of the statement that as management goes, waterfowl research is relatively new and total management is in its infancy. To illustrate this, the following quotation from Scientific Report No. 8 on Waterfowl Populations and Breeding Conditions, Summer 1950, reads:

"One of the outstanding events in the wildlife field in recent years has been the collaboration of waterfowl workers to get facts about waterfowl breeding populations and the pooling of those facts to the benefit of hunting regulations. This cooperative effort has grown from an increasing recognition by the men and their respective agencies that the results of local investigations of migratory and their habits (1) normally cannot be projected to apply to other parts of the breeding range, and (2) attain their greatest management value when they are considered in the light of similar information from other areas and become a part of a broad picture of conditions. . . .

"That was a start, but the coverage, important as it was, actually involved only a small part of the breeding range. Since 1947, however, the cooperative breeding grounds investigations have come a long way, achieving results which could not have been obtained by any other means."

This is from a combined report in late 1950, issued jointly by the U.S. Department of Interior, Fish and Wildlife Service; and the Canadian Department of Resources and Development, Canadian Wildlife Service.

It was in a similar report, prepared by the same agencies for the summer of 1952, that the first pessimism, along with optimism, can be noted in predictions for the Mississippi Flyway in particular:

"A comparatively dry spring season and rapid run-off provided excellent nesting conditions on the Mud Lake Refuge in northwestern Minnesota, and early observations pointed to an increased breeding population. Later surveys revealed a decline of about 25 per cent from the 1951 figure. Redheads, scaup, ringnecks, canvasbacks and ruddy ducks all showed a decided decrease; the gadwall, a drop of 27 per cent and the coot production was about 92 per cent below last year's figure. Mallards, baldpates, pintails, green-winged teals and shovelers each showed increases of 100 per cent or more over 1951, whereas the blue-winged teals dropped 54 per cent."

This applied to only one area but reflected the sincere but unvarnished observations in a refuge in one important duck state. Today, as knowledge has advanced, there is explanation for a 92 per cent decrease in coots and a 100 or more per cent increase in mallards. They may have shifted to other areas, or in the case of the mallards, may have concentrated in a given area.

It is in the evaluation of such reports that began being accumulated as early as 1952 that something went wrong with present continental evaluation of total waterfowl populations.

These earlier "Special Scientific Reports" were comprehensive and represented early but essentially accurate estimates. They were abandoned in 1956 when the 1956 Status Report of Waterfowl, compiled by W. F. Crissey, appeared. The following explanation was offered:

"For the nine year period 1947-1955, the Service issued 'Special Scientific Reports' annually which contained the separate reports of each cooperator in the waterfowl breeding ground survey program. During that time this publication grew from 101 to 267 pages and the cost of putting it out grew proportionately.

"Most readers were mainly interested in the conditions which affected the waterfowl flyway in which they lived. Therefore, it was decided to put the flyway reports together on a flyway basis,

End of a successful hunt. As long as waterfowlers are allowed to harvest a reasonable number of ducks and geese each season, there can be little doubt that they will contribute time and money toward perpetuation and wise utilization and management of this vital resource.

rather than for the country as a whole, applying any saving in publication costs to a new type of report which presented the details of more significant special studies. Another reason for making this change in procedure was that the annual Status Report of Waterfowl, released by the Service, contained summaries of breeding ground conditions; hence, to some degree the two Special Scientific Reports duplicated each other.

"The following summary of waterfowl breeding conditions during 1956 for the area affecting this flyway is taken from Special Scientific Report—Wildlife No. 33. (1956 Status Report of Waterfowl compiled by W. F. Crissey).

"The waterfowl population present in the Mississippi Flyway during January, 1956, was considerably larger than the year before, and was considerably above the average of the past several years. Increases were recorded for most of the important species except the Canada goose, which remained about the same.

"Increases in population were recorded also following the return of the birds to the breeding grounds. Surveys indicated a larger breeding population in Southern Saskatchewan, Manitoba, North Dakota, South Dakota, Minnesota and in the Northwest Territories. Decreases were recorded in Northern Saskatchewan, Northern Manitoba, and Ontario.

"Throughout most of the breeding range supplying the Flyway (Mississippi) the season was from two to three weeks late. There was somewhat less water in parts of the prairies in Saskatchewan and Alberta than there was a year ago. On the other hand, water levels were practically at flood stage in Manitoba. There was little rain throughout the prairies and parklands from mid-May through mid-June, but the drought was broken by general rains during the latter part of June. Shower conditions prevailed during July to the extent that water levels have been maintained.

"Nest mortality was rather high during the early part of the season and the drying conditions which set in during late May and early June discouraged re-nesting to some extent. In spite of the increased breeding populations, therefore, the fall flight will be about the same as last year from Southern Saskatchewan, Southern Manitoba, Northern Alberta and the Northwest Territories, North Dakota, South Dakota, Wisconsin, Michigan, Quebec, and Labrador and Alaska. Decreases are expected from Northern Saskatchewan, Northern Manitoba, Ontario, Southern Alberta, Nebraska, Iowa, and Missouri. It is expected that the only increases in fall flight will come from Minnesota, Indiana and Ohio.

"Over-all, the fall flight forecast for the Mississippi Flyway is for about the same population of ducks as last year.

"There is little breeding ground data concerning production of geese other than that the season was late. Since a late season may have an adverse effect on production, it is estimated that the flight this fall of Canada geese and blue geese will be about the same as last year or somewhat less.

"The number of coot broods seen this year was greater in several locations, particularly in Southern Saskatchewan. There, it is estimated that the fall flight of coots will increase this year in the Mississippi Flyway."

This was the first Breeding Ground Survey Report compiled and released by the Flyway Representative Arthur Hawkins.

How was this reflected in hunter opportunity? The answer is readily available. There was no increase in the daily bag limit or the number of shooting days; but the mid-winter inventory showed a greater number of waterfowl in the Mississippi Flyway. It was a banner year for waterfowlers.

Turning quickly to 1957, the birth of gloom can be read between the lines. To quote:

"This is the second consolidated report assembled by the Flyway Representative on waterfowl breeding conditions for the area affecting the Mississippi Flyway. Here in a nutshell are five conditions which have had a bearing on this fall's flight:

"1. Wintering numbers were about the same as in 1956 but in most species still above the long-term average.

"2. Breeding pairs showed up in somewhat reduced numbers as compared to 1956 in parts of the Prairie Pothole Region including Minnesota, the Dakotas and southern Saskatchewan but in greater numbers throughout Manitoba—northern

Saskatchewan, and Ontario. Overall there was a moderate downward trend.

"3. Drought conditions seemed to be spreading over the prairies making considerable inroads in the number of surface water areas.

"4. A strong early start resulted in an unusually successful hatch so that the fall flight forecast was nearly as optimistic as that of 1956. Late nesters did not fare as well as the early nesters, perhaps due to the drying conditions.

"5. Early this fall a malady, presumably botulism, took the lives of several thousand ducks in Manitoba and Saskatchewan, birds presumably headed for this Flyway. Its full effects have not been appraised at this writing. Except for this sour note, a good hunting season seems in prospect."

This survey was written by Arthur Hawkins.

The mid-winter inventory of that year revealed that there were more ducks in the Mississippi Flyway than in 1956.

It follows that there was no increase in the daily bag limit nor in the number of hunting days.

Of great significance is the fact that later in 1961, the mid-winter flyway count was slightly higher than in 1957 but something had happened. The bag limit was reduced to three and the number of shooting days was cut from 70 to 30. Yet duck stamp sales for 1961 as compared to 1957 showed a drop of nearly 50 per cent. This indicated less hunting pressure, by far, on a slightly greater number of ducks, with a drastic curtailment of hunter opportunity for a small bag.

There began what might be termed the "battle of the ducks." There were more theories than fleas on a hound dog. They ran the gamut of tighter restrictions to expressions that wintering grounds and the mid-winter count were not important. It was the breeding habitat that counted.

When breeding habitat began to recover from drought, federal biologists came up with the recommendation that species restrictions were necessary because mallards and pintails in particular were down. Tight restrictions, particularly on mallards, did not produce any significant gains.

Congressional hearings were conducted in an effort to get at basic facts in waterfowl management. Regardless of the restrictions, flights southward remained about the same, even improving in recent years. That is not true of all species and declines in those species rekindled the demand for more restrictions.

The evaluation of the U. S. Fish and Wildlife Service of the 1965 teal season resulted in granting of another teal season, the second in an experimental series of three. This is scheduled for September 17-25, 1966.

The history of waterfowl management is one of experimentation and in this decade tinged with an unsound biological theory that any form of wildlife can be stockpiled. The future is uncertain, but the methods of management are just as uncertain. That future, however, is not hinged to gun pressure alone. It is closely hinged to both nesting and wintering habitat. Many fine efforts have been made along that line. Additional nesting areas are being preserved. It is imperative that wintering habitat must be preserved. If it is to be preserved by private and state governmental efforts, the reward must be fair hunting opportunity and fair hunting regulations.

At the present time efforts are being made to disperse the Canada goose population to provide more goose hunting opportunity for a greater number of hunters. These geese were live-trapped in Missouri and are been held at Rockefeller Wildlife Refuge with the hope that when they are released, they will return to the deep South, bringing with them their young and possibly other Canada geese. This would mark a forward step in waterfowl management.

This is intended to be a glance in depth at waterfowl management. Much has been learned and there is much more to be learned. Habitat preservation and hunter opportunity go hand-in-hand. The biggest problem facing managers of waterfowl is how to accomplish that problem of preserving habitat and providing the traditional sport of waterfowling.

It's the $64 question and it must be answered in the 1960's! ✠

Wildlife In Louisiana

The upland plover is well known in Louisiana under the French name of "Papabotte", which is a phonetic expression of the bird's call. Because of excessive hunting it became extremely rare. The timely passage by congress of the Migratory Bird Treaty Act, in 1918, which forbade the killing of a long list of migratory birds, was the salvation of this and many other shore birds.

The skimmers are large, long winged, tropical ternlike birds in which the lower half of the greatly compressed bill is longer than the upper half. With the knifelike edge of its lower mandible cutting the surface of the waters of Louisiana coastal bays and lagoons, the skimmer scoops up the tiny fish that form its diet. The scissor shape of the bill is the basis of the name "bec a ciseau", by which it is known by our French-speaking inhabitants. The call note is a houndlike "yap, yap" from which another local name "sea dog" is derived.

Second Experimental!

TEAL SEASON SPECIAL

R. K. Yancey

Louisiana duck hunters will again have the opportunity to hunt teal during part of September 1966. The season is set to begin at sunrise Saturday September 17 and close at sunset Sunday September 25. Regulations for hunting teal during the 1966 season will basically be the same as those in effect during 1965. The daily bag limit will be 4 blue or green-winged teal with a possession limit of 8. No other species of waterfowl can be taken during this period. Each hunter must have in possession while hunting: (1) A special federal teal hunting permit. (2) A federal duck stamp, and, (3) A state hunting license. The special federal permits can be secured free by addressing an application to:

Teal Section
Louisiana Wild Life & Fisheries Commission
Room 305 Old Peabody Hall
Capitol Station
Baton Rouge, Louisiana 70804

All applications for special permits must be mailed NO LATER THAN AUGUST 17, 1966. It will be impossible to obtain a teal hunting permit after that date since all forms will be returned to Washington for further processing.

This is round two of a 3-year experiment to determine if short September hunts on these early migrants are workable and biologically feasible. The first of the 9-day hunts was held in September 1965 and a highly comprehensive report entitled "1965 Experimental September Hunting Season on Teal" was published by the U. S. Fish & Wildlife Service, Bureau of Sport Fisheries & Wildlife, outlining the results. Of interest to Louisiana hunters will be the fact that 20 states in the Central and Mississippi Flyways participated in the special season last fall. Some 202,000 permits were issued in these states to prospective teal hunters. Approximately fifty-five percent of this total actively exercised the permit and went afield.

The Bureau report indicated that approximately 484,000 blue-winged teal and 47,000 green wings were killed during the season. This included crippling losses that averaged about twenty percent. In addition to this legal kill approximately 34,000 ducks of other species were killed illegally in the 20 states, indicating the fact that there is room for improvement on the part of hunters during the forthcoming season in eliminating this figure.

Teal prefer shallow lakes and marshes where waterfowl food plants are plentiful.

In Louisiana a total of 41,415 permits were issued to teal hunters. This was nearly half of the total number that participated during the regular duck season of the previous year. When hurricane "Betsy" stormed through Louisiana on September 9, just prior to the opening of the season on September 18, 1965, this reduced the number of teal hunters that went afield to approximately thirty-one percent of the permit holders. It also materially reduced the number of blue-winged teal available for hunting in the coastal areas since many of these ducks moved out prior to the storm. Additionally the high winds and storm tides battered the marshes in southeast Louisiana and greatly reduced their attractiveness to migrating teal.

Despite this catastrophe, the opportunity to hunt during the special season provided many of those who did go afield with excellent hunting. Fine shooting occurred on Catahoula Lake on the opening weekend and throughout the season in many areas of southwest Louisiana. Those who made preparations and found a good place to hunt prior to the season experienced excellent results. The Bureau report shows that Louisiana duck hunters bagged 63,770 blue-winged teal and 2,520 green-winged teal. This does not include the crippling loss that was estimated at about twenty percent. About one-third of the hunts made in Louisiana yielded limit bags and the average kill per hunter per day averaged 2 teal. This exceeds the average daily kill success experienced during the regular duck season which indicates that excellent success was realized by those who did participate. This may have been influenced somewhat by the fact that a high percentage of those who hunted were the more experienced hardcore duck shooters.

In the 20 states, eighty-seven percent of the teal season permit holders indicated that they favored another special season. In Louisiana hundreds of letters were received by the Louisiana Wild Life and Fisheries Commission which were highly complimentary of the season. All letters received indicated that the teal hunters would like to have additional seasons in the future such as that held in 1965.

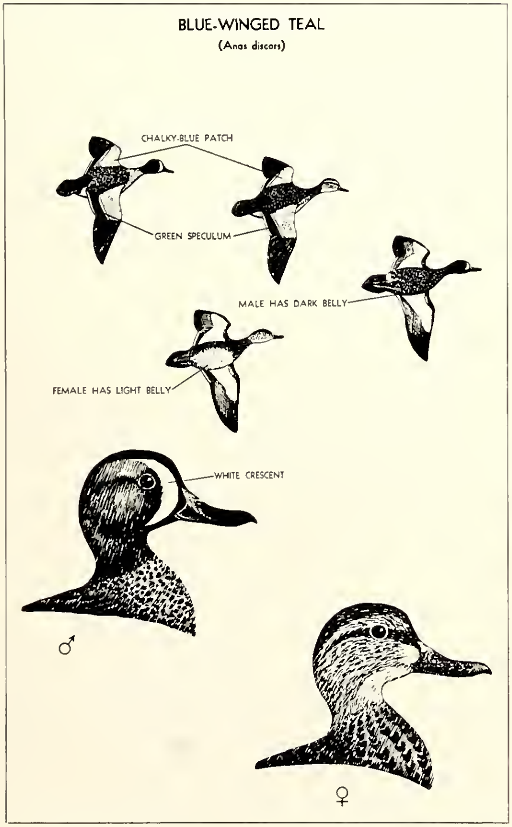
It was in 1957 that Louisiana first initiated a concentrated effort to obtain an early fall teal hunting season. Research studies of waterfowl migrations in the state started in 1950 documented the passage of large flights of blue-winged teal prior to the opening of the regular duck hunting season here. These aerial inventories of waterfowl populations, which were carried out by the Commission, also revealed that the leading segment of the blue-winged teal flight was passing through coastal Louisiana even before the regular duck season opened in Minnesota. It was determined from this and other information that an unharvested segment of the waterfowl population was available for limited fall hunting.

Working with the Mississippi Flyway Council, the U. S. Fish & Wildlife Service established procedures for conducting and evaluating the special teal season on an experimental basis beginning in 1965. The trial hunts were scheduled to run for a period of 3 years. The seasons were to be closely evaluated to determine if they were practical and biologically sound. The data gathered during these hunts will determine whether or not the September seasons will become an annual event. So far the preliminary information gathered during the 1965 season suggests that the continental population was not adversely affected for any waterfowl species according to the Bureau report. The 1966 and 1967 studies will be needed for final conclusions.

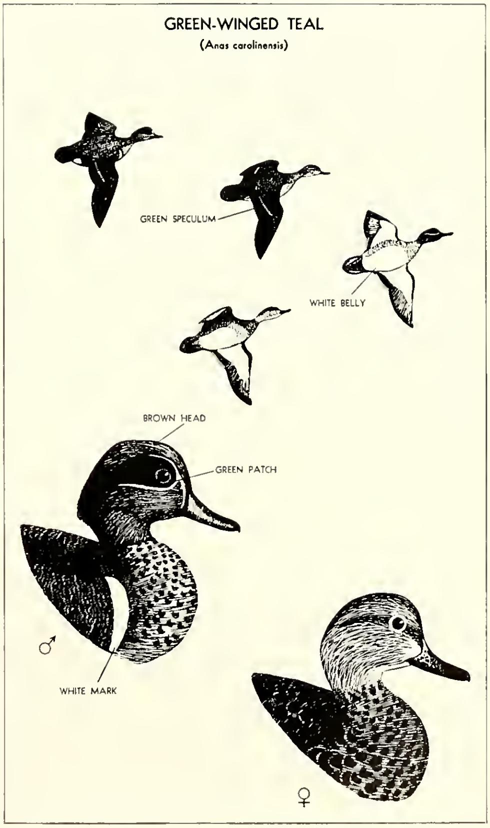
Hunter behavior may well be the factor that makes or breaks future September hunts in the various states. If ducks other than teal are taken or if the hunting regulations are not closely adhered to on the part of all the participants this will certainly show up in the final evaluation because of the intense checks that are being carried out in several different ways. For this reason it is in the hunter's interest to carefully avoid even the accidental shooting of any ducks other than teal and to closely adhere to the season regulations.

On the whole, Louisiana teal hunters conducted themselves in a highly commendable fashion during the 1965 hunt. Some mottled ducks were shot, probably intentionally since this species in no way resembles teal—so there is room for improvement during the 1966 hunt.

The U. S. Fish & Wildlife Service allowed the


BLUE-WINGED TEAL

(Anas discors)


GREEN-WINGED TEAL

(Anas carolinensis)

Many teal hunters took limit bags during the successful 9 day season held in September 1965.

Wild Life and Fisheries Commission to set the 9-day hunt for 1966 anytime during the month of September. The dates of September 17 to September 25 were chosen since this embraces the last two weekends in the month. Although migrations of ducks other than teal will not have started in great numbers, there will be scattered flocks of shovellers, pintail, widgeon, wood ducks, and fulvous tree ducks on hand. A review of duck identification characteristics before going afield will be in order for all duck hunters. Remember the future of other September hunts in the years ahead probably depends on you. ✠

ATTENTION TEAL HUNTERS

Season-September 17 through 25, 1966 Dates inclusive

Teal Bag Limit-4 daily; 8 in possession.

Bag may include blue or green-winged teal.

No other species of waterfowl may be taken.

Shooting Hours-Sunrise to sunset.

Teal season is opened statewide in Louisiana.

Each hunter must have in possession while hunting:

1. **A special teal hunting permit. Closing date for issuing these permits will be August 17, 1966. Apply to Teal Section, La. Wild Life & Fisheries Commission, Room 305 Old Peabody Hall, Capitol Station, Baton Rouge, Louisiana 70804.**
2. **A State hunting license (except under 16), or a State hunting permit if over 60 years of age.**
3. **A Federal Duck Stamp (for those 16 years or older.)**

All other federal and state hunting regulations must be closely observed.

PIROGUE RACES

Held At Lafitte

EACH YEAR AT GOOSE BAYOU on Barataria Bay the world championship Pirogue Races are held. Sponsor of this annual event is the Lafitte Yacht Club.

This year's event held May 15th was plagued with wind and occasional rains making a handicap for the paddling participants. However, weather conditions cleared before the main event.

Festivities began at 11:00 A.M. with the water parade. Other entertainment besides the races for those attending was a brass band which played from the shore and from a skiff cruising the Bayou.

After the main and final race a new "World Champion" pirogue racer was crowned. The new champion is Louis W. "Billy" Frickey, 18, of Westwego, Louisiana. This was Billy's first try for the "World Championship." Billy had raced three times at Lafitte in the teenage class, never winning first place.

Pirogue racing is not for men only. In the ladies event Mrs. Dorothy Meyers of New Orleans placed first. This is the second year in a row for Mrs. Meyers to cap this event. Her race did not go smoothly as her craft capsized at the lineup for the start. Personnel of the Louisiana Wild Life and Fisheries Commission assisted Mrs. Meyers in righting her craft. After winning the race her craft capsized again ducking her at the docking point.

Early races prior to the championship event were dominated by the Leon Bourgeois family of Venice. Mr. Bourgeois and his son, Anthony, placed first and second respectively in the work pirogue races; his daughters, Mary Francis, 16 and Patricia, 13, placed first and third respectively in the girls' teenage race; son David, 15, placed second in the teenage boys' race.

All races were two miles in length except the men's world championship event, which was four miles. ✠

Billy Frickey of Westwego is crowned "World Champion Pirogue Racer" for 1966.

CRAWFISH FESTIVAL

Breaux Bridge, Louisiana

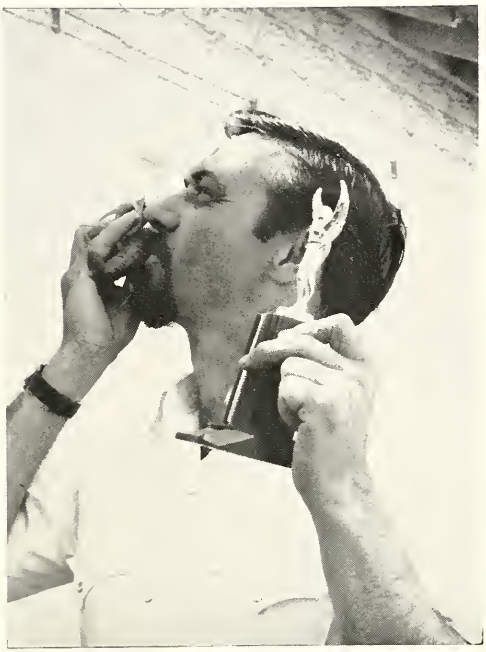
Joe L. Herring

BREAUX BRIDGE, Louisiana, the Crawfish Capital of the World is located on the banks of Bayou Teche in St. Martin Parish. Breaux Bridge became world renowned in 1959 when it celebrated its centennial with such eclat that the Louisiana Legislature passed the House Concurrent Resolution No. 17 naming the city of 5,000 "La Capitale Mondiale des Ecrevisses". Since that year the Cajun community has held the Crawfish Festival sponsored by the Crawfish Festival Association, a nonprofit organization existing uniquely to foster the sale and consumption of the crawfish by attracting thousands to the festivities honoring the crawfish.

The 1966 Crawfish Festival was held April 15, 16 and 17. It was a full three day event with crawfish eating contest, Fais Do-Do's, crawfish races, parades, Les Brave Barbe, Crawfish Cooking Bee, Crawfish Queen Coronation Ball, queen's contest and many others.

The fantastic crawfish eating contest was held on main street where the worlds renowned gourmets vied for the coveted trophy. The two hour contest pits not only the quantity consumed but the dexterity in obtaining the meat from crawfish. This year Andrew Thevenet retained his eating title, putting away 31.5 pounds of crawfish. Thevenet in keeping his title did not match his 1965 consumption of 33 pounds.

Joe Bowers, West Lake, Louisiana, a spectator at the World Champion Crawfish Races looks amazingly at Number 11 Tee-Louie. Tee-Louie crossed the finish line first to become the new Crawfish Racing Champion. Tee-Louie is owned by Ray Broussard.



Ray Broussard, Breaux Bridge, Louisiana, gives Tee-Louie a welcome kiss after winning the Worlds Championship Race. Tee-Louie a prodigy of the Atchafalaya Basin crossed the finish line first in the final race to become the new World Champion. Owner Broussard is a festival Les Brave Barbe; beards are grown for this event.

The crawfish races, for world championship, originated in the Crawfish Capital of the World, is the only one of its kind in the world. This year's winner was Tee-Louie owned by Ray Broussard, Breaux Bridge, Louisiana. Tee-Louie was a prodigy of the Atchafalaya Basin area. Racing consists of a six foot circle and the object is to see which crawfish can be the first out.

A glittering spectacle, the Crawfish Queen Coronation Ball, with its handsome decorations, enhances the festival theme "Crawfish Around the World". Miss Michelle Ritchey was crowned queen of the annual Crawfish Festival. Named first maid was Miss Karen Kern and second maid was Miss Kathleen Irwin.

Last year's queen, Lydia Gonzales was presented during the Coronation Ball and presented the crown to the new queen.

During the festival crawfish is served all day, any way. ✠

SEASONAL Marsh Scenes

Robert H. Chabreck and Ted Joanen

LOUISIANA'S SPRAWLING coastline provides the outdoor enthusiast with recreation on a year-round-basis. Yet, a winter visitor to the marshes, such as the duck hunter, would hardly recognize the area where he spent many anxious hours during December should he return in mid-summer. A marsh scene during one season will have a very different appearance during the next.

The *winter marsh scene* is the one we see most often. The winter is the *season for utilization* and since early times men have been attracted to the marshes for the purpose of harvesting a part of the wildlife crop.

The hunter, trapper and fisherman can remember the scene, yet all see it from a different angle. The hunter remembers large ponds with the shoreline partially submerged. The vegetation of the previous summer shows the effects of a frost and the driving northerly winds. These winds leave a lasting impression, particularly upon a winter fisherman along the coast. Not only the wind but the associated low tides and exposed reefs are typical scenes.

The trapper finds that nutria becomes more evident during the winter as the protective cover of grass disappears, water levels rise and the animals are forced to search for food. A pleasant scene is the growing muskrat bed, as the animal adds material daily to keep it above the water.

The Louisiana marshes during the winter months are home to over 5 million ducks and geese. A typical scene to everyone is the V-shaped flight in the sky as a flock moves from one area to another.

A Winter Scene—Many thousands of blue and snow geese winter in the coastal marshes. Pictured above is a flock moving into a freshly burned area.

A scene for beginning—The banks of the many marsh ponds and pot holes provide ideal nesting cover for the resident Mottled Duck.

In winter the vegetation is dormant and few evergreen plants are found in the freshwater marshes. However, in brackish and salt water marshes much of the grass remains green, but yet growth is very slow. The drab color of the dead or dying vegetation in the winter marsh is an indication of the amount that will be returned to the soil to provide nourishment for next year's crop.

The surface of the marsh, although it may be blanketed with a foot of water, is covered with seeds produced during previous summers. Studies on Rockefeller Refuge in Southwestern Louisiana show that these seeds are valuable duck foods and are present very often in amounts exceeding 750 pounds per acre.

The seeds are the end product of a long series of events that began the previous spring. The spring is a very interesting and beautiful season in the marsh, but one which most people seldom witness.

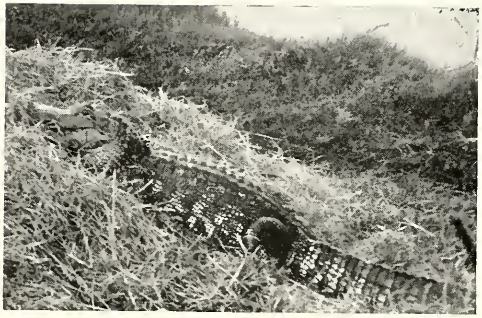
A *season of beginning and growth* could well describe *spring* in the coastal marshes. Overhead the various winter residents can be seen beginning their northward migration, also the turtles and alligators make an appearance after their long winter hibernation absence. Pairs of mottled ducks are observed scouting the marsh edge for a nest site. Waterlevels in the marsh begin receding as the rains so common during winter become fewer and evaporation increases. As the marsh floor becomes exposed various seeds such as wild millet, foxtail, sprangletop and cyperus begin germination. The fresher marshes grow various annual grasses and sedges which produce seeds highly prized by waterfowl. In the brackish and salt marsh and pot holes plants begin putting on new growth. The highly favored wigeongrass and several species of spike rush begin to make an appearance in the ponds. Three-cornered grass and coco, favorite of muskrat and blue geese, emerge from the marsh floor.

The occasional visitor to the marsh sees the vegetation without realizing the orderly fashion by which each group of plants occupy certain sites. Each plant species is restricted to a certain zone of water levels and water salinities. With this in mind the marsh manager is able to provide the conditions favorable to good wildlife food plants by constructing water controlling structures, and carefully regulating the structures. This work can result in a continual production of these desirable wildlife food plants in abundance necessary to attract or build up sizable populations of any species desired. Habitat improvement by dewatering areas in the fresh marsh during the growing season to produce annual grasses, and stabilizing salinities and water levels in the brackish marsh for the production of aquatics has proven favorable in increasing waterfowl utilization on marsh refuges of the Louisiana Wild Life and Fisheries Commission.

In addition to a beginning for marsh wildlife and vegetation, spring brings a new start for fish along the coast. Early spring finds young brown shrimp moving inland into estuaries and marsh ponds to occupy these areas as nursery grounds. The young of other marine fishes move inland into the marshes at this time where they will enjoy rapid growth in the fertile waters.

Gradually this scene of beginning and growth gives way to *summer, a scene for production.* The mottled ducks which we watched in courtship flight are now proudly displaying their newly hatched broods. The marshes of the fresher zone are completely dry and cracked, and the annual grasses push toward maturity as seed heads begin forming. The brown shrimp have matured, moved into open bays and finally into the gulf to later complete its life cycle. Also, other marine fishes move inland as the salinities increase and young white shrimp occupy the nursery grounds vacated by the brown. Summer is also the scene of lightning fires and hurricanes, both very destructive at times, but one more so than the other. As a result of the recent hurricanes thousands of acres of marshland have been damaged, levees broken, and salt water advanced into areas where once wild millet, panicums and other freshwater plants flourished. Lightning fires are numerous in the coastal marshes during the summer although their damages are very localized as advancement is stopped by the many bayous and canals.

The Spring Scene. Wild millet begins to germinate from a fresh marsh dried in June to produce seeds that are favorite food for ducks.



A Summer Scene—The season for production finds a female alligator on the nest in a Louisiana coastal marsh.

Early flights of teal arrive in late summer for a short stay before continuing on to Central and South America.

As the summer scene fades out it makes way for the browns and yellows of autumn, a scene for maturing. The young brood of mottled ducks are now flying and have joined others of their kind forming a large group, to soon begin a dispersal over the coastal marshes and ponds. The female alligator is busy enlarging her den while her newly-hatched young are lazily enjoying the last glows of the autumn warmth. The tall annual grasses, now yellow with age and seeds matured, break in the winds and fall to the ground. Periodic rains increase and small ponds take shape in the stubble and fallen vegetation.

Eggs of the marsh mosquito, having lain dormant on the dry marsh for several months, hatch as the water returns, soon to become a nuisance to the visitor. White shrimp and other summer residents in shallow lakes, now mature, move to deeper water and higher salinities.

Marsh fires are more evident, now man made, preparing for the almost time clock arrival of the blue and snow geese to their ancestral wintering grounds. Also, fur trappers are using fire to remove rough grasses to better look over the prospects for the approaching trapping season. By mid-October the bulk of the other species of waterfowl begin arriving to set up winter residence in the coastal marshes.

As each day grows colder and the north winds grow stronger, the anxious hunter looks ahead and makes ready his equipment for the return of his favorite scene, winter—a season for utilization. ✠

You can't bag a tree . . . but

HABITAT CAN BE IMPROVED THROUGH SELECTIVE CUTTING

R. K. Yancey

FOREST GAME AND WATERFOWL will be the principal beneficiary of a timber stand improvement program to be carried out on parts of the Russell Sage Wildlife Management Area this summer. This 15,000 acre tract of bottomland hardwoods lies just east of Monroe and was purchased by the Commission in 1960 for game management purposes.

Deer were stocked by the Commission in the area prior to acquisition and the herd has increased rapidly. Highly successful deer hunts have been held there in recent years. A green timber waterfowl management area has been developed for duck hunting and in addition an impoundment has been constructed and designated as a refuge for ducks. Wild turkey have been stocked and appear to be establishing themselves. Squirrel and swamp rabbits along with other species of birds and animal life are probably at carrying capacity levels under present habitat conditions.

The next logical step in improving this bottomland hardwood area for wildlife is to create a better year-round food and cover condition. Contrary to common belief an unmanaged forest does not produce maximum quantities of game. A timber stand made up of a solid overstory of mature or over-mature trees is usually one of the poorest types of deer range.

Deer browse can be produced in large quantity by opening up a closed forest canopy by selective removal of trees. Here sufficient sunlight has reached the forest floor in an opening to encourage a good growth of rattan vine, a favorite deer food plant.

Here a closed overstory of tree crowns shades out growths of deer browse plants. The removal of the larger rock elm[1] from this site will solve this problem and also allow most of the suppressed red oaks[2] in the foreground to break through and mature.

At present dense pure stands of rock elm occupy substantial acreages of the Russell Sage Area. This species had little commercial value during the years when the tract was logged over, prior to purchase by the Commission. For this reason large numbers of rock elm trees were left while the red oaks and other more valuable species were cut and removed. Prior selective cutting of these trees, as well as changes in site conditions, particularly drainage, had much to do with the development of the existing timber stand.

Presently the rather pure dense stands of rock elm are shading out deer browse plants at ground level and suppressing red oak saplings and other prospective mast producers. By removing many of these trees through a selective timber cutting program many of the plants valuable to wildlife will be released when the closed canopy of rock elm crowns is opened up. After this has been completed sunlight will reach the forest floor and result in growths of assorted deer browse plants, such as rattan, smilax, etc. essential as a year round food supply for deer.

In addition the operation will be carried out so as to lead to the development of a wider variety of hardwood species that will be much more valuable for wildlife in the years ahead than the

Dr. Bryant A. Bateman, L.S.U. School of Forestry and Wildlife Management, explains one phase of determining tree volume to students and Commission biologists.

Wildlife management students and Commission biologists prepare to initiate game habitat improvement program. Paint guns are used for marking trees individually for removal.

present stands of rock elm. The mast of this species is used by squirrels for food and an ample number of these trees will be left to serve this purpose. The operation will be geared to favor willow oak, nuttall oak, and the other mast bearing species that produce food for squirrel, deer, turkey, and waterfowl.

All merchantable green ash, soft elm, gum and locust will also be removed since these species are generally of less importance to wildlife. Individual overcup oak trees, hackberry and bitter pecan found in the stands will be left since they produce mast valuable to wildlife. Where a number of trees of any one of these species are found close together some will be removed. Thinning a dense stand of overcup or bitter pecan will allow the remaining trees to put on vigorous growth and produce more food for wildlife.

The objective of the program will be to eventually create the widest possible variety of hardwood mast producers in an all age class forest. When this is accomplished deer browse will be available on a year round basis and mast for squirrels, waterfowl and other forms of wildlife will be assured even if one or two of the producing species has a crop failure during any given year.

In planning this operation the Commission was able to obtain the assistance of Dr. Bryant A. Bateman of the Louisiana State University School of Forestry and Wildlife Management. Dr. Bateman is one of the south's outstanding authorities on forest game management and since the program will have long range effects on wildlife populations on the Russell Sage tract it was deemed necessary that the best possible advice be secured in initiating this pilot project.

Dr. Bateman, game management students from L.S.U., Commission biologists and other Commission personnel assembled on the Russell Sage area on April 15, 1966, to plan and initiate the operation. It was determined that four widely separated tracts on the property totaling 1500 to 2000 acres would be selected for treatment. Each individual tree to be removed would be carefully selected and marked for taking out.

The pilots were spaced for cutting one or two miles apart so the newly created supply of browse would be available to every deer on the area. Positive results in browse production will be realized by the end of the first growing season after the treatment has been completed. This in turn will greatly favor deer. Population sizes of small game animals are usually controlled by the quantity of the habitat and improved range conditions will result in increased squirrel numbers in 3 or 4 years. Swamp rabbits, another game species favored by many, will benefit materially from the program.

This timber stand improvement program for game will be somewhat unique in the delta area of Louisiana. Economics has been the principal factor controlling most forest management programs. This naturally necessitated favoring the most valuable species from the financial standpoint. In this case, however, the production of the timber species most favorable to wildlife will be encouraged.

Forest game habitat in the delta region of Louisiana is shrinking at a fantastic rate as a result of land clearing operations for agricultural purposes. If the present trend continues the Commission owned tracts may well be some of the last stands of bottomland hardwoods in northeast Louisiana. According to recent figures the overall Mississippi River Delta forest acreage has been reduced approximately twenty-five percent in 10 years.

Although land clearing has been taking place for many years in the hardwood areas owned by agricultural interests, it was felt by most sportsmen that those lands owned by the timber producers would be maintained as forests, thereby remaining available for hunting of deer, squirrel, turkey, etc. Now, however, recent reports indicate that at least one of the major timber producers in northeast Louisiana is planning to im-

(Continued on Page 22)

Planting and Planning in the
SALINE WILDLIFE MANAGEMENT AREA

Dewey E. Wills

OUR EXPANDING POPULATION is continually seeking more opportunities to enjoy hunting, fishing, and the great outdoors. More leisure time, increased purchasing power and the ease of modern transportation have made the demand for outdoor recreation become greater each year. Wildlife management areas, such as state-owned Saline Wildlife Management Area, will help meet the outdoor needs of this expanding population.

The Saline Wildlife Management Area is located in portions of LaSalle and Catahoula Parishes. Approximately 50,000 acres lie in the southeastern part of LaSalle, while approximately 10,000 acres lie adjacent to this tract in Catahoula Parish. The 50,000 acre tract was purchased by the Louisiana Wild Life and Fisheries Commission in March, 1964, the remaining 10,000 acre tract was purchased in September, 1964.

This important wildlife area is located near the western edge of the Mississippi flood plain in the complex Red River watershed. This area is relatively flat, poorly drained and is subject to periodic overflows. Saline Wildlife Management Area is situated in this backwater and overflow area that has the reputation for providing some of the best sport fishing to be found in the State of Louisiana.

The primary timber type is considered to be bottomland hardwood. Common tree species are overcup oak, nuttall oak, water and willow oak, bitter pecan, cypress, elm, and ash.

The Louisiana Wild Life and Fisheries Commission is now in the process of developing the Saline Wildlife Management Area for maximum public recreation utilization. The following paragraphs give a brief resume of what has been accomplished, what is planned, and what the public may expect within the next few years.

This shows the type of fences that are being constructed around the study plots that are being constructed on the Saline Wildlife Management Area in efforts to determine what food plants can be grown for wildlife after all cattle have been permanently removed from the area.

This attractive permanent marker at the gate entering the Saline Wildlife Management Area is only 50 yards from the highway and in years to come will be the marker drawing thousands of visitors, campers, picnickers, hunters and persons enjoying the outdoors to the recreational facilities being built now, or in the planning stage.

Boundary Marking: There are approximately 80 miles of land boundaries around and within the Saline Wildlife Management Area. These lines have been surveyed by licensed surveyors and have been painted with white paint at intervals of 20 to 25 feet around the entire area. Also, boundary markers have been posted around the boundary. The markers used are 12″ x 12″ one-eighth inch metal, with black letters on yellow background, and are attached to trees at appropriate intervals. In places where the distance between signs was too great because of lack of trees, posts were set and markers attached to the posts. Large entrance markers have been erected at the main entrances to the wildlife management area.

Fenced Study Areas: Three hundred acres were fenced as a study area in June of 1965. This area is located near the northern portion of the wildlife management area. The plot was fenced with 48 inch net wire, with two strands of barbed wire at the top and one strand of barbed wire at the bottom. This plot was established behind the existing Catahoula Lake-Jonesville levee, therefore, it will not be subjected to flooding. The purpose of this area is to (1) study the recovery and regeneration of plants after cattle, hogs, and water are excluded from the plot, (2) test experimental plantings, and (3) determine the feasibility of improving the timber stand.

A second study area, consisting of approximately 1,000 acres, was established and work completed in May, 1966. This area was fenced with both net and barbed wire to exclude livestock. However, this area is located outside the previously mentioned levee and will be subject to periodic flooding. Timber stand improvement and experimental plantings are planned for this area also.

In addition, six sets of smaller plots (6 fenced and 6 open), consisting of one acre each, have been established. These plots were purposely located on different contours or elevations. Observations will be made as to what species will become established on the site after the livestock has been removed. Some plots will be clear-cut of all existing overstory trees, while others will remain untouched. Comparisons of the fenced and unfenced and of the treated and untreated areas will be made.

Experimental Planting: In December, 1965, approximately 50 seedlings of saw tooth oak *(Quercus acuminata)* were planted at an abandoned oil well location within the aforementioned 300 acre study area. Observations this year revealed approximately 90% survival of this introduced species. If seedlings of this species become available, additional plantings will be made.

Boat Launching Ramp and Camping Area: The Commission has constructed a boat launching ramp at the end of Hunt Oil Company Road. This free public ramp provides access to Saline Bayou, Saline Lake, Larto Lake, and numerous other water bodies located within the Saline-Larto Lake complex. Adjacent to this, the Commission is now in the process of establishing a camping area. Some clearing has been accomplished, and this area should be ready for use by mid-July. At least two additional camping areas and one additional boat launching ramp are planned for the area. These areas will, when completed, have tables, sanitary facilities, and drinking water available. Sites such as these will provide additional places where the public can enjoy recreational opportunities of picnicking and overnight camping free of charge.

This is a photograph made in May showing an additional study plot under construction the Saline Wildlife Management Area. Addition plots are being planned and are soon to be constructed.

This photograph shows a comparison of the growth of useful wildlife food plants in Study Area No. 1 as compared to the lack of plant growth necessary for wildlife outside the enclosure.

Deer: Fifteen deer have been released on the area to supplement the nucleus deer herd already present. The northern portion of the area will eventually be protected from spring overflows which will provide better habitat for deer. Through habitat improvement and proper protection, this herd should develop into a huntable population within a few years.

Turkey: Eleven turkeys have been released on the area, and additional birds will be stocked as these birds become available. The limiting factor here is obtaining pure wild stock for transplanting. It has been found that pen-raised birds for restocking purposes are not desirable and, therefore, only wild trapped birds will be placed on the area when obtainable.

Doves: A development program aimed at providing dove hunting on the area has been initiated. The clearing of four ten-acre food plots began in early May. The trees and brush will be cleared to ground level, wind-rowed and burned. After the plots are prepared for planting, brown-top millet will be sown at the prescribed wildlife rate. It is planned to stagger the planting of the millet on the four plots, in order that millet will mature at different dates, thus furnishing food over a longer period of time. It is anticipated that these plots will be ready for the second split of the dove season.

Waterfowl: The Catahoula Lake Diversion Canal is to be constructed from Catahoula Lake to Black River across the Saline Wildlife Management Area. When this project is completed in-

This photograph shows land clearing adjacent to the Saline Game Management Area. Note lack of vegetation or any plant growth utilized by wildlife in the area.

tensive waterfowl work will be undertaken. This canal will provide an excellent source of water and will greatly increase the opportunities for the development of large green tree reservoirs. Until such time that the diversion canal is completed, however, waterfowl development will consist of earthen dams across several of the bayous meandering through the area. With its close proximity to Catahoula Lake, which annually winters a high duck population, this area should furnish increasingly better waterfowl hunting as the various habitat improvement projects are completed.

Squirrels and Rabbits: This area has been logged heavily in past years and presently supports fair squirrel population. There was a squirrel hunt held on the area during the 1965 season and spot checks indicated that the kill was low to moderate, however, as the timber stand improves over the years squirrel habitat will improve and the squirrel population will increase. There is a good rabbit population on the area and hunting was permitted concurrently with the squirrel season of 1965. It is planned to have as long a squirrel and rabbit season as is possible each year on the area as long as they do not interfere with other management programs being carried on.

Other plans that will be initiated in the near future call for timber type mapping, soil analysis and subsequent mapping, and detailed topographic maps being made of the area. This will, of necessity, preclude some major planning and intensive development on the area. A headquarters building and storage facilities will be constructed on the area in the near future. At present, one wildlife management area supervisor and two refuge wardens supersise, patrol and help in carrying out the management programs on the area.

State-owned management areas, such as Saline Wild Life Management Area, are the answer to what is fast becoming a major problem in public hunting. ✠

Habitat Can Be Improved

(Continued from Page 19)

mediately begin a land clearing operation on a sizeable portion of their lands. If this is the beginning of a new trend it may well mean that every sportsman who likes to hunt forest game in the bottomland hardwoods will have a stake in the Commission's habitat improvement and land acquisition program.

This makes it doubly important that conditions on the Russell Sage tract be improved to make it possible to produce the greatest quantity of wildlife. Timber stands comprised of willow oak, nuttall oak, overcup oak, bitter pecan, hackberry and rock elm will obviously produce a higher population of squirrel and better range conditions for deer, turkey, etc. than will a rather pure stand of rock elm or any other single species. There is little reason to believe that this 15,000 acre tract cannot be improved to easily carry a population of one squirrel per acre, one deer per twenty acres (700 deer), and other substantial wildlife populations as food and cover conditions are improved.

Research studies will be carried out to record changes in browse and mast production. Information gathered from these studies will be extremely valuable when similar habitat improvement programs are carried out on the newly acquired 60,000 acre Saline Wildlife Management Area in LaSalle and Catahoula Parishes.

The removal of the timber will be handled as a routine sale after bids have been solicited by the Louisiana Division of Administration. The proceeds will then be placed into the Commission's funds for other wildlife work. The project will be closely supervised by Cliff Williams, District Supervisor of the Wild Life and Fisheries Commission in the Monroe area, and other district personnel. When completed the Russell Sage Game Management area will offer a better home for increased populations of wildlife and more hunting opportunity for the State's outdoorsmen. ✠

Commission biologist John Haygood ages a suppressed red oak with an increment borer. When the closed overstory of rock elms is opened up by selective cutting growing room will be provided for thousands of young red oaks at sites like the above. These oaks will soon be producing quantities of mast for wildlife.

Leon Gary, right, Executive Assistant to Governor John J. McKeithen, second from left, was capped as Admiral of the Fleet for the 1966 Grand Isle Tarpon Rodeo July 21, 22 and 23. Presentation of the admiral's cap to Gary was made by J. D. Hair, Jr., third from left, Director of the Louisiana Wild Life and Fisheries Commission and Vice President of the Grand Isle Tarpon Rodeo Association. Gaines C. Batson, left, Executive Assistant General Chairman of the Rodeo also presented rodeo ticket No. 1 to Governor McKeithen, ticket No. 2 to Gary, and ticket No. 3 to Hair who served as Admiral of the Fleet in 1965. Governor McKeithen was Admiral of the Rodeo Fleet in 1964. The ceremonies took place in the Governor's Mansion in May.

GRAND ISLE READIES FOR RODEO

FISHERMEN from all parts of Louisiana, as well as the neighboring states of Mississippi and Texas, are primed and ready for the 34th Grand Isle Tarpon Rodeo which is scheduled for July 21, 22 and 23. The Grand Isle rodeo is the oldest competitive fishing classic on the Gulf of Mexico coast.

When Hurricane Betsy slammed into Louisiana last September, rodeo officials as well as sport anglers expressed serious concern about the possibility of a rodeo in 1966. The island was virtually swept clean of beach, road and homes and restaurants. The contest officials wisely determined to go ahead with plans for a rodeo this year.

As a result of an intense rebuilding program on an increasingly accelerated basis, the island is in much better shape than many people believed it could be. There is the certainty that it will be even better prepared for the several thousand people who will attend the July contest.

There have been some slight changes in the eligible fish categories. Manta ray and Swordfish have been removed from the list and Sharks are not eligible for the King Fisherman trophy but are eligible for first, second and third place awards, as are other eligible fish.

Anglers will be after Barracuda, Saltwater Catfish, Bluefish, Bonito, Cobia, Jackfish, Flounder, Giant Sea Bass (Jewfish), King Mackerel, Blue Marlin, White Marlin, Redfish, Red Snapper, Sailfish, Spadefish, Speckled Trout, Spanish Mackerel, Tripletail, Tuna, Dolphin, Wahoo and Shark.

Headquarters for the rodeo will be a new, permanent shed located near Fisherman's Wharf.

Urban C. Wilkinson, long-time General Chairman, will again serve in that position. Assistant Executive General Chairman is Gaines C. "Gay" Batson. Lee H. Perez, Jr., is Secretary and William W. "Bill" Arnoult is Treasurer.

Dr. Charles B. Odom is President of the 1966 Grand Isle Tarpon Rodeo and Otto Candies is President Elect for 1967.

Assistant General Chairmen are General Raymond F. Hufft, George R. Retmeyer, Hon. Walter B. Hamlin, Dr. Don L. Peterson, Charles J. Eagan, Alwynn Cronvich and Pat Booker.

1966's SHELL PLANTING FOR OYSTERS

Ted B. Ford

THE FOURTH MAJOR PLANTING of shells for catching oyster spat was completed between May 12 and June 1st in two areas east of the Mississippi River. The two sites, Bay Boudreau in St. Bernard Parish and Black Bay in Plaquemines Parish, lie in the sprawling natural oyster seed grounds area. Each site was carefully selected on the basis of suitable bottom and water conditions as well as their history of good catches; each comprised approximately six hundred acres. The planting rate was 30 cubic yards of selected clam shells per acre, or 18,000 cubic yards at each site. Representatives of the Louisiana Oyster Dealers and Growers Association recommended clam shells and assisted in the selection of the two sites at our request.

Funds for this program came from Public Law 88-309 appropriations and state matching funds. Eighty percent of the cost of the shells will be reimbursed due to the substantial damage to the oyster fishery by Hurricane Betsy, while the remaining twenty percent will be a 50-50 cost-sharing under another phase of the Commercial Fisheries Research and Development Program.

Providing good stocks of seed oysters for planting on leased bottoms in the fall of 1967 seems to be the most effective means of assisting in the recovery of this fishing industry. The planted areas will be closed until September 1, 1967 when the fall season opens, provided satisfactory "sets" of oysters occur and good seed oysters are available. Then, all oysterfishermen will have an equal opportunity to fish for seed.

Measurement by insertion rod to determine average height of shells on barge. Each barge load is measured upon arrival at the planting site.

Spot sampling observations of shell distribution on the bottom were made by diving. Generally satisfactory "spreading" of the shells was obtained by spraying with the high pressure hoses. Additional examinations will be made over the next several months to evaluate the success of this project by determining the percent of catch of young oysters. A more comprehensive report will be given then. ✠

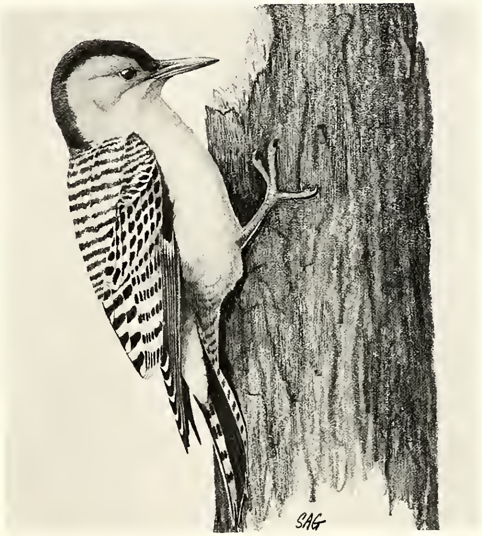
Commission agents and contractors' representatives work together in the screening operation to approximate the volume of undersized shells per barge load. Undersized shells are deemed undesirable for spat.

A closeup of hydraulic system being used to remove shells from barge. Employing two such hoses, as the one being used to cut into the mountain of shells, will take only one hour to spread 300 yards of shells.

The Bird of the month

RED-BELLIED WOODPECKER

Centurus Carolinus



ALTHOUGH OBVIOUSLY a woodpecker, this bird somewhat belies his name since to the casual observer there is nothing to indicate a "red belly". In fact the underparts seem primarily white with the faint trace of red on the extreme underparts not being visable. The male bird has a solid red cap while the female shows only partially red but both have the cross-stripes of black and white on the back which is the origin of the coloquial names of "Ladder-back" and "Zebra-Woodpecker" in some areas. There should be little difficulty in identifying this species, since no other woodpeckers in our state show this color combination.

The woodpeckers exemplify rather dramatically the adaptations which enable birds to fit into specialized ecological niches, in this case of course, the limbs and trunks of trees. The woodpecker's bill and tongue enable it not only to drill through the bark and outer wood to the burrow of a grub or beetle but the tongue is extensible and barbed so that if the insect prey has backed away the tongue can be thrust down the burrow and harpoon the grub and drag it out to be eaten. The specialized head parts are also useful in excavating a nest hole in which the young can be safely reared. The tail also shows a marked modification since the stiffened shafts of the tail feathers extend out to form a prop while the bird is drilling into a tree trunk. The feet also show a change since normal bird foot design of three toes forward is altered to a stronger combination of two forward and two back for better purchase on the bark as the bird moves up and down the tree trunks, limbs, etc.

These are relatively noisy birds, with the somewhat scolding calls being repetitious "chir" or "chiv". The varied call-notes somewhat resemble those of a squirrel and also those of the Flicker and Red-Headed Woodpecker.

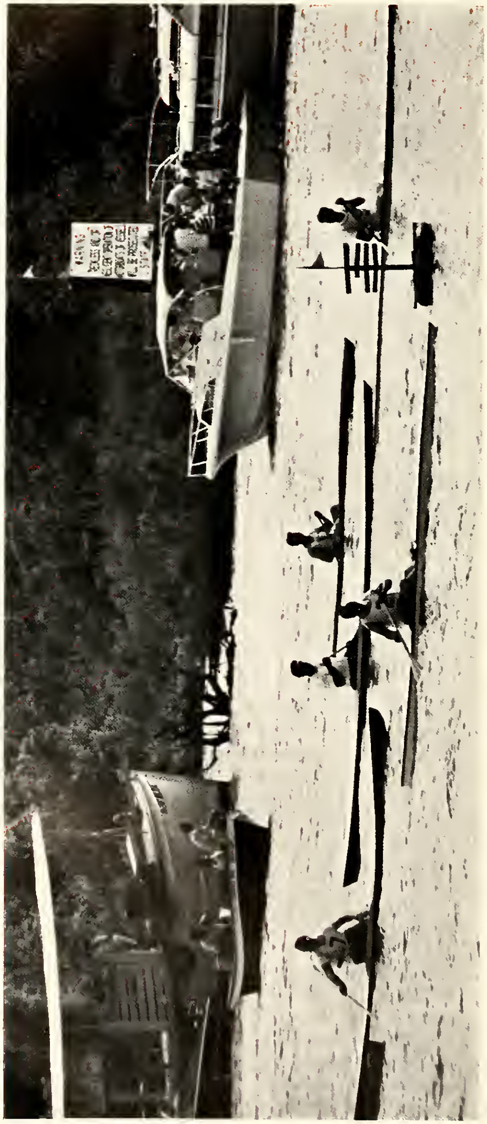
Naturally the nest is a cavity in a dead tree and may be located some 20 to 60 feet from the ground usually around midway of this height. Both birds participate in excavating the nest and considering the method used, a natural preference for soft-wooded trees is not at all surprising. The entrance hole is about 2 inches in diameter, although not exactly round. The same nest may be used for more than one year and occasionally they may lighten their labors considerably by using an abandoned nest of another woodpecker instead of building their own.

As is common with the most cavity-nesting birds the eggs are white and with this species may range in number from 3 to 8 eggs per clutch. The incubation period is about two weeks. Both parents share in the incubation and also in the feeding and care of the young birds. The juvenile birds rather resemble their parents but the head may appear brownish sometimes rather than the bright red of the adults.

In addition to ants, beetles and other forms of insect life these birds also consume considerable vegetable matter including various forms of mast such as acorns, beech nuts, and even corn, as well as a wide variety of various wild fruits found in its woodland habitat.

While one of its larger relatives, the Pileated Woodpecker, has caused considerable damage to power and telephone poles by excavating large nesting cavities which weaken the pole and may cause it to break during reavy wind storms and thus causing expensive and time-consuming replacement of poles and service, the majority of Woodpeckers are not only harmless to man but actually beneficial in helping in the enormous task of trying to keep insect population under control. In addition to the legal protection afforded our insectivorous birds by national and state laws, man's own good judgment and self interest should prevent him from using them for target practice. ✠

RETURN REQUESTED
Louisiana Wild Life and Fisheries Commission
400 Royal Street
New Orleans, Louisiana 70130



PIROGUES ARE PRIME MOVERS IN LOUISIANA'S MARSHES AND BAYOU COUNTRY

Annual Race

Needle-nose racing pirogues are getting into position for the annual pirogue races. They are held each May at Lafitte, the tiny community named after the pirate-patriot who played such an important role in the Battle of New Orleans. These are racing pirogues and shorter, wider work pirogues still remain prime movers in the bayou and marsh country, as important today as a settler's horse was in building the West. The annual race at Lafitte is a unique Louisiana classic. (Photo by Robert Dennie)